DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE: STP-2946(1) & STP-2946(2) Bartow
P.I. Nos. 621410 & 621415
S.R. 113 Widening/Reconstruction

OFFICE: Engineering Services

DATE: April 4, 2007

FROM: Brian K. Summers, PE, Project Review Engineer

TO: Kent Sager, District Engineer, Cartersville

SUBJECT: IMPLEMENTATION OF VALUE ENGINEERING STUDY ALTERNATIVES

Recommendations for implementation of Value Engineering Study Alternatives are indicated in the table below. Incorporate the VE alternatives recommended for implementation to the extent reasonable in the design of the project.

ALT #	Description	Potential Savings/LCC	Implement	Comments
ROADWAY (RW) --- PHASE II				
1.0	Combine Phase I and Phase II into a single Contract Award	Design Suggestion	No	Due to the Letting Schedules of the projects this will not be feasible.
2.0	(Emergency Savings) Grade Phase II and Phase III and install major Drainage Structures but only construct two new lanes	$5,000,000	No	Based on Traffic Analysis, four lanes are needed to accommodate the projected traffic volumes once the roadway is opened to traffic.
4.0	Classify 6% SE throughout in lieu of 8% SE Classification	$1,216,478	No	At this point, Right of Way acquisition has already begun. Changing the SE Rate would cause major re-design work which could jeopardize the schedule.
6.0	Pave 6.5 ft of Outside Shoulder and 2 ft of Inside Shoulder with Asphaltic Concrete over GAB in lieu of PCC Pavement on both Phases	$900,000	No	The Pavement Design has already been approved by the Pavement Design Committee.

ALT #	Description	Potential Savings/LCC	Implement	Comments
ROADWAY (RW) --- PHASE II - CONTINUED				
11.0	Realign intersection at Old Alabama and Cul-de-sac	$127,259	No	Right of Way at this intersection has already been acquired. Changing the skew alignment would cause re-design delays.
STRUCTURAL (SB)				
1.0	Eliminate End Spans and utilize MSE Retaining Walls with single span across S.R. 293 and CSX Railroad	$5,568,721	Yes	This should be done as long as it doesn't adversely affect the requirements in the Environmental Document or jeopardize getting CSX Railroad agreement.
2.0	Utilize three sided Prefab Arches to span across S.R. 293 and CSX Railroad and reuse the Unclassified Excavation as fill to the profile	$6,246,604	No	Would impact the requirements in the Environmental Document in regards to maintaining the "Viewshed".
3.0	Utilize a full Arch Bridge in lieu of a Three Span Bridge	$680,455	No	Would result in a steel structure being utilized which has a higher initial cost and has higher long term maintenance costs than a concrete structure.
5.0	Revise the Bridge Construction Staging	Design Suggestion	No	As it stands now, the schedule of these projects will dictate where and how the Bulb Tee Beams are delivered.
ROADWAY (RW) --- PHASE III				
2.0	(Emergency Savings) Grade Phase II and Phase III and install major Drainage Structures but only construct two new lanes	$13,813,628	No	Based on Traffic Analysis, four lanes are needed to accommodate the projected traffic volumes once the roadway is opened to traffic.
4.0a	Classify 6% SE throughout in lieu of 8% SE Classification	$1,432,833	Yes	This has been done.
5.0	Change the Pavement Design from PCC Pavement to Asphaltic Concrete Pavement	$9,024,188	No	The Pavement Design has already been approved by the Pavement Design Committee.

ALT #	Description	Potential Savings/LCC	Implement	Comments
ROADWAY (RW) --- PHASE III - CONTINUED				
6.0	Pave 6.5 ft of Outside Shoulder and 2 ft of Inside Shoulder with Asphaltic Concrete over GAB in lieu of PCC Pavement on both Phases	$2,500,000	No	The Pavement Design has already been approved by the Pavement Design Committee.
7.0	Manipulate the horizontal and vertical alignment to maximize the use of the existing pavement for Phase III	Design Suggestion	No	Due to the existing condition none of the existing pavement will be retained.
9.0	Re-evaluate how traffic will connect to Phase III on the East end of the project	Design Suggestion	Yes	This has been done.
STRUCTURAL (SB)				
4.0	Utilize a three sided Arch over the Ryle Creek in lieu of dual bridges	$1,008,440	Yes	This should be done pending the review and approval of the Hydraulic Study on this project.

A meeting was held on April 3, 2007 to discuss the above recommendations. Samuel Williams and Kenneth Anderson with JJ & G, David Moore and David Ray with District 6 Design, and Brian Summers, Ron Wishon and Lisa Myers of Engineering Services were in attendance.

Subsequent information was provided by the Design Consultant on 4/4/07.

The results above reflect the consensus of those in attendance and those who provided input.

Approved: _____ **Date:** 4/4/07
David E. Studstill, Jr., P. E., Chief Engineer

BKS/REW

Attachments

c: Gus Shanine, FHWA
DeWayne Comer
David Moore
David Ray
Nabil Raad
Kenny Beckworth
Lisa Wesley
Quinn Hazlebaker
Doug Franks
James Magnus
Lisa Myers

VALUE ENGINEERING TEAM STUDY
STP-2946(1) & (2)
P.I. No. 621410 & 621415
RESPONSES TO RECOMMENDATIONS

PHASE II - ROADWAY

IDEA No. RW-1.0
Combine Phase 1 and Phase II into a Single Contract Award.

ADVANTAGE No. 1
Do not have to haul fill material across railroad;
RESPONSE:

At approximate Sta. 445+00 to Sta. 455+00, and 1000 ft to the right, New Riverside Ochre has a mining pit that requires approx. 500,000 cubic yards of fill, which if used, could significantly reduce the amount of waste that needs to be hauled off site. Also, as shown on the map below, any excess waste could be hauled from the site to I-75 or elsewhere, via SR 293/Old Alatoona Rd., without going over the railroad.

RESPONSE :

1. Phase 2 is scheduled to be Let in June of 2007, well in advance of Phase 3, and any bridge beams for Phase 3 can be delivered directly from I-75 through the ramp at Red Top Mountain Road provided Phase 1 has also been constructed. If Phase 2 and 3 were built at the same time, the bridge over SR 293 would have to be constructed before the bridge beams for the bridges on Phase 3 could be delivered. The delivery of the beams along the SR 293/Old Alatoona Road is accessible regardless of the status of each construction project.

2. The amount of time that the contractor will have to pay for flagmen will only be related to bridge construction, as any waste could be hauled to I-75 through SR 293/Old Alatoona Rd.

3. The Superstructure staging of the bridge construction equipment and material can be accommodated at various points on the project, including but not limited to the north end.

4. The project let dates (Phase 2 June 2007 and Phase 3 2008) are far apart in terms of design status, and is therefore not feasible to be let together for the purpose of construction coordination.

IDEA No. RW- 2.0

(Emergency Savings) Grade Phase II and Phase III and install Major Drainage Structures but only construct two new lanes.

RESPONSE:

General Design:

The project concept report recommended constructing four lanes based on the volume of traffic. Attached is an additional Traffic Design Analysis which was done based on the traffic volumes for Phase 2. The results show that due to the volume of traffic through the corridor, a minimum of two lanes are required in order to obtain the required level of service.

Finance:

If only two lanes were build initially for this project, the construction funds spent would have been used to maintain existing conditions, therefore, it is advisable to construct all four lanes in order to meet design requirements. Further, taxpayers may question the $ 18,851,889 savings, which depending on the viewpoint, may not necessarily be regarded as a saving at all, but spending $ 40 million out of a possible $ 59 million, to maintain existing conditions.

Safety:

Additionally, there are safety concerns, as the unpaved lanes would invite or create opportunities for drivers to, through intent or error, use or mistake the built-up, but out-of-service lanes as usable lanes, thereby causing accidents.

IDEA No. RW- 4.0
Phase II - Classify 6% SE Throughout in Lieu of 8% SE Classification.

RESPONSE:

The original design for the Phase II was derived using the approved project concept report, which was based on the AASHTO "A Policy on Geometric Design of Highways and Streets," 2001 Edition. The superelevation rate of 8% was used to allow smaller curves for the winding alignment and because of the high truck volume and the 55 mph speed design. To date all of the design has been completed based on the 8%, and to revise the plans to meet the 6% superelevation, the entire project would have to be redesigned, because of significant changes to the side roads, overall drainage, embankment, ditches, utilities, erosion control and guardrail.

IDEA No. RW- 6.0
Pave 6.5 ft of Outside Shoulder and 2 ft of Inside Shoulder with Asphaltic Concrete over GAB in lieu of PCC Pavement on both Phases.

RESPONSE:

THIS RECOMMENDATION WILL **NOT** BE APPLIED TO THE PROJECT. As per Instruction from GDOT Senior Management, Portland Cement Concrete pavement will be used for the Phase 2 project. The 6.5 ft of outside shoulder shall be constructed of concrete.

IDEA No. RW- 11.0
Realign Intersection at Old Alabama and Cul-de-sac.

RESPONSE:

DESIGN CONSTRAINTS: ANGLE OF INTERSECTION. The alignment was redesigned previously and approved at the PFPR to allow a minimum disruption to the homes and older trees in the vicinity of the Old Alabama Road at STA. 383+40, while considering drainage and ROW issues. Moving the alignment would lead to major drainage, roadway, erosion control, utility, and Right-of-Way redesign, as there are several major drainage structures which are associated with the drainage from the mainline and side road alignment, the embankment, and the properties in the area.

PHASE II – STRUCTURAL

IDEA NO. SB-1.0

Eliminate End Spans and Utilize MSE Retaining Walls With Single Span Across SR 293 and CSX RR.

RESPONSE:
1. Final design quantities and current unit prices result in Original 3-Span Design cost of approximately $5,900,000, rather than the $5,591,700 estimated in the Value Engineering Team Study.
2. The IDEA NO. SB-1.0 cost is approximately $4,825,000, rather than the $861,734 estimated in the Value Engineering Team Study.
3. The application of a "15% MARK UP" is not appropriate for comparative

purposes. The % is made up of Mobilization, MOT, and contingencies which are likely fixed costs to be estimated.
4. Therefore, the estimated savings for SB-1.0 is more likely about $1,075,000.

IDEA NO. SB-2.0

Utilize Three Sided Prefab Arches To Span Across SR 293 and CSX RR And Reuse The Unclassified Excavation As Fill To Profile.

RESPONSE:
1. We cannot confirm cost ($3000 per lin ft) or feasibility of "3-sided BEBO arch" to span facilities.
2. Mr. Chad Gibbs, CONTECH, INC. will provide answers to these questions by January 29, 2007. Also, a recommended footing.
3. Spanning either the roadway or the railroad will require more than "60'-0". See sketches below.
4. A steel BEBO arch is recommended. Galvanized reinforced pipe may not be acceptable for long-term structure. Use concrete structures?
5. Ventilation and lighting cost should be evaluated for this option by VE Study Team.

IDEA NO. SB-3.0

Utilize A Full Arch Bridge In Lieu Of A Three Span Bridge.

RESPONSE:
1. Bridge costs invariably increase per square foot as span length increases.
2. Steel superstructures could achieve these span lengths. However, steel is more expensive than PSC Bulb-Ts, both initially and in cost to maintain. This would be especially true for a structure of this height above ground when attempting to repaint the superstructure.
3. Concrete superstructures would either require high falsework to support if CIP, or precast, post-tensioned construction and the use of precasting yard.
4. Longer spans would not be cheaper than the 3-span standard construction selected. It is unclear how VE Study Team arrived at $5,000,000.

PHASE III - ROADWAY

IDEA No. RW- 2.0

(Emergency Savings) Grade Phase II and Phase III and install Major Drainage Structures but only construct two new lanes.

RESPONSE:
(See PHASE II - IDEA No. RW- 2.0)

IDEA No. RW- 4.0a

Phase III - Classify 6% SE Throughout in Lieu of 8% SE Classification.

RESPONSE:

THIS RECOMMENDATION WILL BE APPLIED TO THE PROJECT. The design recommendation to use 6% superelevation on the mainline on Phase III has been implemented into the design, and the recommendation to use 4% on the side roads, will be used, so that the estimated cost savings could be realized.

IDEA No. RW- 5.0

Change the Pavement design from PCC Pavement to Asphaltic Concrete Pavement.

THIS RECOMMENDATION WILL **NOT** BE APPLIED TO THE PROJECT. As per Instruction from GDOT Senior Management, Portland Cement Concrete pavement will be used for the Phase 3 Project, as recommended by the pavement committee. Both the mainline and shoulder shall be constructed of concrete.

IDEA No. RW- 6.0

Pave 6.5 ft of Outside Shoulder and 2 ft of Inside Shoulder with Asphaltic Concrete over GAB in lieu of PCC Pavement on both Phases.

RESPONSE:

THIS RECOMMENDATION WILL **NOT** BE APPLIED TO THE PROJECT. As per Instruction from GDOT Senior Management, the concrete pavement will be used for the Phase 3 Project. The 6.5 feet of outside shoulder shall be constructed of concrete.

IDEA No. RW- 7.0

Manipulate the Horizontal and Vertical Alignment to Maximize use of Existing Pavement for Phase III on East End.

RESPONSE:

The existing alignment was designed to meet a lower volume of traffic. In order for the new road to meet current design standards. The proposed horizontal and vertical alignments were designed for a high volume of traffic at a high rate of speed (55mph), which do not allow the new road to match the existing pavement using current design standards. The location of the Airport and the associated glide path requirements, constraints due to environmental issues, and a new development at Douthit Ferry Road, do not permit the road to be designed to match the existing pavement.

PHASE III - ROADWAY

IDEA No. RW- 9.0

Reevaluate how Traffic will connect to Phase III on the East End.

THE RECOMMENDATION WILL BE IMPLEMENTED. Phase 3 will be designed to function as a stand alone project, so that the traffic leaving the designed roadway on the East End, will flow to the existing two lanes of traffic.

PHASE III - STRUCTURAL

IDEA NO. SB-4.0

Utilize A Three Sided Arch Over The Ryle Creek In Lieu of Dual Bridges.

RESPONSE:

Alternative of precast arch structures can be studied and compared during hydraulic analysis.

IDEA NO. SB-5.0

Bridge Construction Staging.

RESPONSE:

Construction method as suggested can be selected by contractor if Phase I and II are let together. If Phase I is let first, timing of Phase II construction can allow the same result.

JORDAN JONES & GOULDING

MEETING MINUTES

SUBJECT:	IMPLEMENTATION OF VALUE ENGINEERING STUDY ALTERNATIVES
PROJECT NO:	STP-2942(1) & STP-2946(2), Bartow County, P.I. Nos. 621415 & 621410
MEETING DATE:	April 3, 2007
LOCATION:	GDOT office of Engineering Services
ATTENDEES:	See Attendee List below
PREPARED BY:	S. Williams & K. Anderson

Introductions and General Discussion

(See VE Study for Alt. Numbers)

* Denotes information to be provided to Engineering Services

PHASE II

RW 1.0	It was noted that the letting of Phase 1 of Old Alabama Road has been moved to July 2007, and Phase 2 to December 2007.
RW 2.0*	Traffic volumes warrant 4 lanes at opening; JJG to provide ***traffic studies*** to Ron Wishon via Lisa Myers.
RW 4.0	The superelevation for Old Alabama Road Phase 3 is 6.0% as per the recommendation, and the superelevation for Phase 2 will remain at 6% because the design was too far along to accommodate the change to 8%.
RW 6.0*	The VE Study recommended asphalt shoulders, but Portland Cement Concrete was recommended by Buddy Gratton. JJG will provide the ***approved PCC pavement design recommendations*** to Design Services.
RW 11.0	The question was raised as to whether the alignment at Old Old Alabama Road could be redesigned to tie in at 90 degrees, and it was noted that there were extenuating environmental, drainage and Right-of-Way issues that were extensively discussed during PFPR, which hindered redesign. Additionally, the ROW has already been acquired.
SB 1.0***	Discuss elimination of end spans and use MSE walls – JJG to check and provide ***environmental document limitations*** (SHPO), ***railroad drainage issues*** and ***railroad commitments***. Check with bridge/RR for requirements and approval timeframe. If environmental & Bridge Dept. approve recommendation, go ahead and redesign. Single span approximately $ 185/SF.
SB 2.0	Discussed using three sided prefab arch. JJG will revisit issue with respect to ***environmental limitations***, and if arches present a "viewshed" problem with respect to historic/aesthetic issues related to the railroad or the City of Emerson.
SB 3.0	Check unit pricing; recommendation not to be implemented.

PHASE III

RW 2.0	JJG will supply Traffic Data.
RW 4.0a	SE changed to 6.0%
RW 5.0	PCC will be used. The VE Study recommended asphalt shoulders, but Portland Cement Concrete was recommended by Buddy Gratton. JJG will provide the approved PCC ***pavement design recommendations*** to Design Services.
RW 6.0	Shoulder Asphalt Cement Pavement to be used in lieu of PCC, as per Pavement Design Committee.
RW 7.0	Discussed using existing pavement, however existing pavement structure inadequate, particularly for heavy volume of trucks.
RW 9.0	Discussions indicated that all three projects can be staged as stand alone.
SB 4.0**	Three sided arch to be used at Ryle Creek subject to acceptable hydraulically and from environmental standpoint. JJG to provide ***hydraulic studies*** and ***environmental commitments***.
SB 5.0	Staging can be done for each Phase separately.

Attendee List

Name	Company	Email	Telephone
Ron Wishon	GDOT	Engineering Services	
Lisa Myers	GDOT	Engineering Services	
Brian Summers	GDOT	Engineering Services	
David Ray	GDOT	District 6	
David Moore	GDOT	District 6	
Ken Anderson	JJG	JJG	
Sam Williams	JJG	JJG	

RIGID PAVEMENT DESIGN ANALYSIS
(BASED ON AASHO INTERIM GUIDE FOR THE DESIGN OF RIGID PAVEMENT STRUCTURES)

P.I. NO.:621415 **PROJECT NUMBER: STP-2946(2)** **COUNTY: Bartow**
LENGTH: 2.216 miles **TYPE SECTION: 4 Lane rural, with 44' grass median, 12' shoulders: 8' paved, 4' unpaved**
DESCRIPTION: Widening and Extension of Old AL Road from CR 699 (Sta 375+00) to SR 293 (Sta 485+00)
TYPE OF ADJOINING PAVEMENT: JPCP **BEGINNING OF PROJECT:**

END OF PROJECT:

TRAFFIC DATA:

ONE-WAY AADT BEGINNING OF DESIGN PERIOD:	5,600	**VPD**	2008	**YEAR**
ONE-WAY AADT END OF DESIGN PERIOD:	11,166	**VPD**	2028	**YEAR**
MEAN AADT (ONE WAY):	8,383	**VPD**		

DESIGN LOADING:

MEAN AADT		LDF		TRUCKS		18K ESAL		
8,383	X	0.850	X	6% MU	X	2.68	=	1146
8,383	X	0.850	X	4% SU	X	0.5	=	143
8,383	X	0.850	X	90% Other	X	0.004	=	26
						TOTAL DAILY LOADING	=	1,315

TOTAL DESIGN PERIOD LOADING =1,315 ESALS/day * 20 years * 365 days = 9,599,500 ESAL's

DESIGN DATA: **SERVICEABILITY (Pt):2.5** **WORKING STRESS:** 450 psi
SOIL SUPPORT VALUE: 2.0
MODULUS OF SUBGRADE REACTION k = 125 pci
MODULUS OF SUBBASE REACTION k_1 = 220 pci on 12 inches GAB,
MODULUS OF SUBBASE REACTION k2=275 pci on 3 inches AC
TRIAL DEPTH OF CONCRETE PAVEMENT: 11 in
ACTUAL STRESS FROM NOMOGRAPH: 362 psi

RECOMMENDED RIGID PAVEMENT STRUCTURE:
11 inches JPCP with 1 ½ inch dowel bars
3 inches of 19 mm SP AC Interlayer
12 inches GAB

REMARKS: Recommended pavement structures is
24.4 % overdesigned, 19.6% understressed

PREPARED BY: Samuel R. Williams, P.E. 8/21/2006

RECOMMENDED: _____ 8/30/06
District Engineer DATE

APPROVED: _____ 8/28/2006
State Pavement Engineer DATE

RIGID PAVEMENT DESIGN ANALYSIS
(BASED ON AASHO INTERIM GUIDE FOR THE DESIGN OF RIGID PAVEMENT STRUCTURES)

P.I. NO.: 621410 **PROJECT NUMBER: STP-2946(1)** **COUNTY: Bartow**
LENGTH: 5.350 miles **TYPE SECTION: 4 Lane rural, with 44' grass median, 12' shoulders: 8' paved, 4' unpaved**
DESCRIPTION: Widening and Extension of SR 113 Old AL Road from SR 113 / to CR 699 (Sta 375+00)
TYPE OF ADJOINING PAVEMENT: JPCP **BEGINNING OF PROJECT:**

END OF PROJECT:

TRAFFIC DATA:

ONE-WAY AADT BEGINNING OF DESIGN PERIOD:	5,600	VPD	2008	YEAR
ONE-WAY AADT END OF DESIGN PERIOD:	11,166	VPD	2028	YEAR
MEAN AADT (ONE WAY):	8,383	VPD		

DESIGN LOADING:

MEAN AADT		LDF		TRUCKS		18K ESAL		
8,383	X	0.850	X	6% MU	X	2.68	=	1146
8,383	X	0.850	X	4% SU	X	0.5	=	143
8,383	X	0.850	X	90% Other	X	0.004	=	26
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TOTAL DESIGN PERIOD LOADING =1,315 ESALS/day * 20 years * 365 days = 9,599,500 ESAL's

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SOIL SUPPORT VALUE: 2.0
MODULUS OF SUBGRADE REACTION k = 125 pci
MODULUS OF SUBBASE REACTION k_1 = 220 pci on 12 inches GAB,
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TRIAL DEPTH OF CONCRETE PAVEMENT: 11 in
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11 inches JPCP with 1 ½ inch dowel bars
3 inches of 19 mm SP AC Interlayer
12 inches GAB

REMARKS: Recommended pavement structures is
24.4 % overdesigned, 19.6% understressed

PREPARED BY: Samuel R. Williams, P.E. 8/21/2006

RECOMMENDED: _____ 8/30/06
District Engineer DATE

APPROVED: _____ 8/28/2006
State Pavement Engineer DATE

HCS+: Multilane Highways Release 5.21

Phone: Fax:
E-mail:

DESIGN ANALYSIS

Analyst:	GL
Agency/Co:	JJG
Date:	1/24/2007
Analysis Period:	AM
Highway:	Old Alabama - PH 2
From/To:	
Jurisdiction:	Bartow
Analysis Year:	2028
Project ID:	

LEVEL OF SERVICE

Direction	1	2
Desired LOS	C	C

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type				
Free-flow speed:	Measured		Measured	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Free-flow speed	55.0	mph	55.0	mph

VOLUME

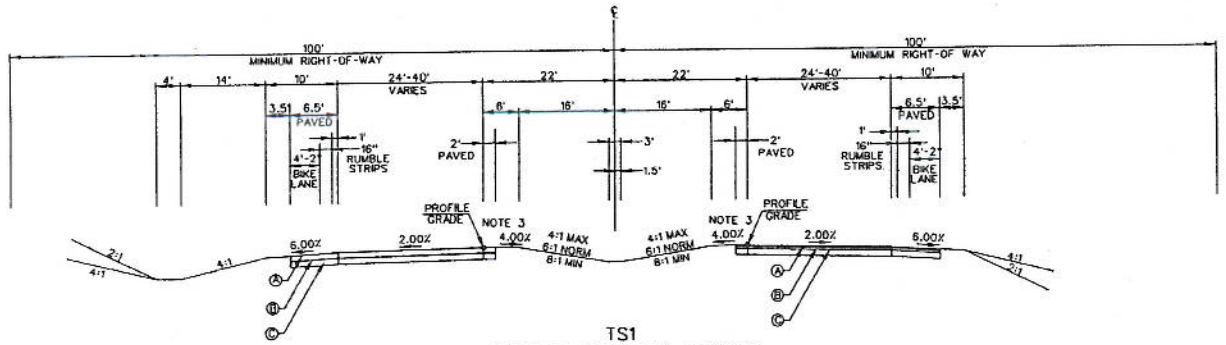
Direction	1		2	
Volume, V	1465	vph	970	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	407		269	
Trucks and buses	10	%	10	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.952		0.952	

Driver population adjustment, fP	1.00		1.00	
Flow rate, vp	1709	pcph	1131	pcph

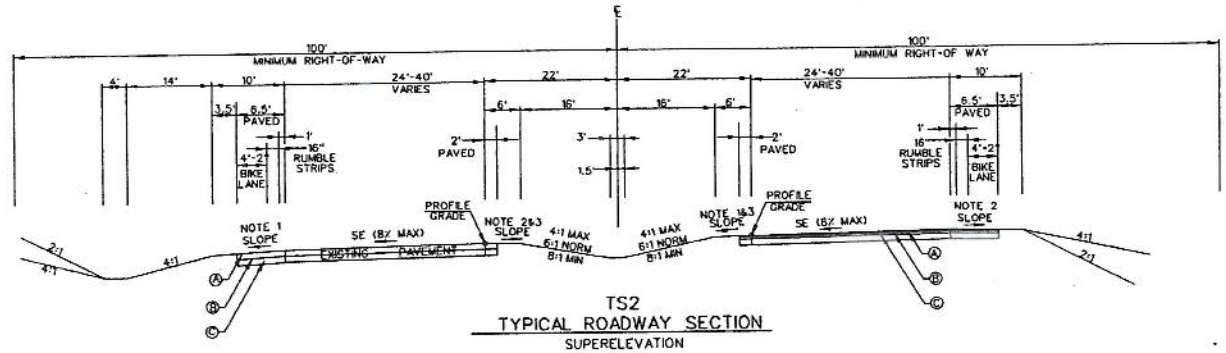
RESULTS

Direction	1		2	
Desired LOS	C		C	
Flow rate, vp	1709	pcph	1131	pcph
Free-flow speed, FFS	55.0	mph	55.0	mph
Allowable maximum service flow rate for desired LOS, MSF	1430	pcphpl	1430	pcphpl
Number of lanes required, N	1.2		0.8	

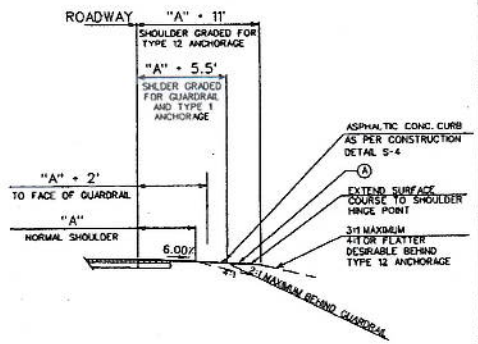
Designers should perform an operational analysis on the possible choices for N.
Overall results are not computed when free-flow speed is less than 45 mph.



TS1
TYPICAL ROADWAY SECTION
NORMAL CROWN
OLD ALABAMA ROAD
BEGIN TO STA 103+68
STA 117+76 TO STA 123+65
STA 117+76 TO STA 123+65



TS2
TYPICAL ROADWAY SECTION
SUPERELEVATION
OLD ALABAMA ROAD



SHOULDER SECTION W/ GUARDRAIL

SEE CONSTRUCTION DETAIL S-4 FOR ADDITIONAL DETAILS FOR SHOULDER PAVING AND SURFACING UNDER GUARDRAIL.

PAVEMENT DESIGN

(A) 11" PORTLAND CEMENT CONCRETE PAVEMENT

(B) 330 LB/SY ASPHALTIC CONCRETE, 19 mm SUPERPAVE, MIX DESIGN LEVEL B

(C) 12" GRADED AGGREGATE BASE

SLOPE CONTROLS		
SLOPE	CUT	FILL
4:1	0'-6'	0'-10'
2:1 *	OVER 6'	OVER 10'

* REQUIRES GUARDRAIL

NOTES:

1. SHOULDER TO SLOPE AT NORMAL RATE OR SUPERELEVATION RATE, WHICHEVER IS GREATER.
2. SHOULDER TO SLOPE AT NORMAL RATE OF 6.00% FOR MAINLINE S.E. RATES OF 2.00% OR LESS. FOR MAINLINE S.E. RATES GREATER THAN 2.00%, THE ALGEBRAIC DIFFERENCE BETWEEN THE MAINLINE PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 8.00%.
3. INSIDE PAVED SHOULDER SLOPE TO MATCH ADJACENT PAVEMENT.

JORDAN JONES & GOULDING

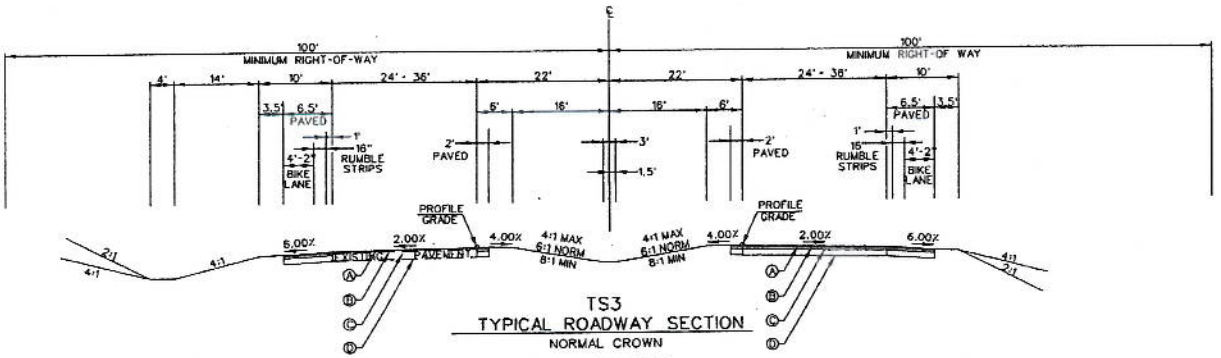
NOT RELEASED FOR CONSTRUCTION

SCALE IN FEET
0 10 20 40

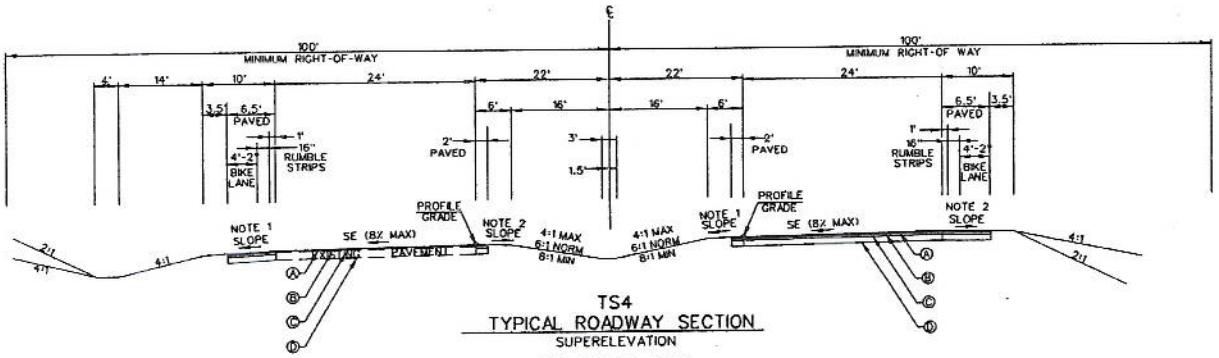
REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE:
TYPICAL SECTIONS

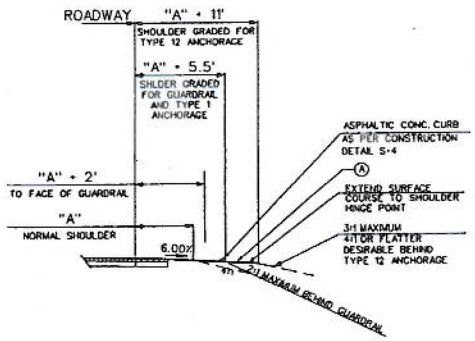
DRAWING No. 5-01



TS3
TYPICAL ROADWAY SECTION
NORMAL CROWN
OLD ALABAMA ROAD



TS4
TYPICAL ROADWAY SECTION
SUPERELEVATION
OLD ALABAMA ROAD



SHOULDER SECTION W/ GUARDRAIL

SEE CONSTRUCTION DETAIL S-4 FOR ADDITIONAL DETAILS FOR SHOULDER PAVING AND SURFACING UNDER GUARDRAIL.

PAVEMENT DESIGN

- (A) 165 #/YD2 ASPHALTIC CONCRETE, 12.5 mm SUPERPAVE, MIX DESIGN LEVEL B
- (B) 440 #/YD2 ASPHALTIC CONCRETE, 19 mm SUPERPAVE, MIX DESIGN LEVEL B
- (C) 440 #/YD2 ASPHALTIC CONCRETE BASE, 25 mm SUPERPAVE, MIX DESIGN LEVEL A
- (D) 12" GRADED AGGREGATE BASE

SLOPE CONTROLS		
SLOPE	CUT	FILL
4:1	0'-6'	0'-10'
2:1 *	OVER 6'	OVER 10'

* REQUIRES GUARDRAIL

NOTES:

1. SHOULDER TO SLOPE AT NORMAL RATE OR SUPERELEVATION RATE, WHICHEVER IS GREATER.
2. SHOULDER TO SLOPE AT NORMAL RATE OF 6.00% FOR MAINLINE S.E. RATES OF 2.00% OR LESS. FOR MAINLINE S.E. RATES GREATER THAN 2.00%, THE ALGEBRAIC DIFFERENCE BETWEEN THE MAINLINE PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 8.00%

JORDAN JONES & GOULDING

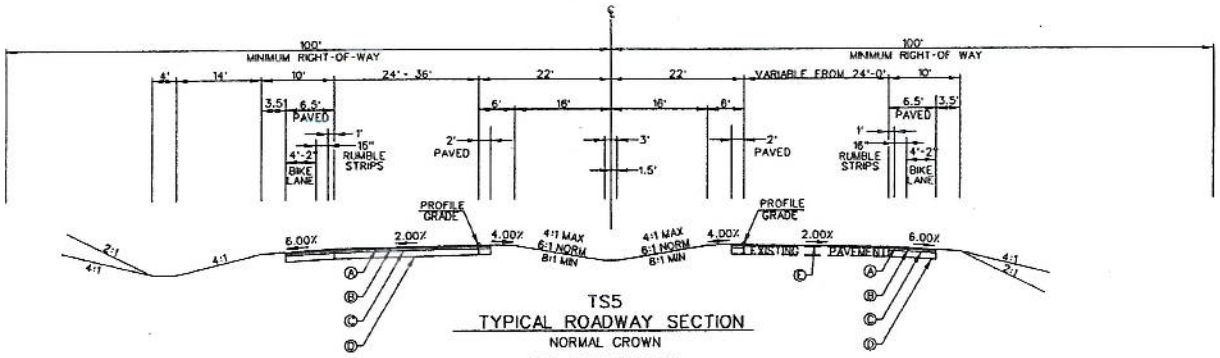
NOT RELEASED FOR CONSTRUCTION

SCALE IN FEET
0 10 20 40

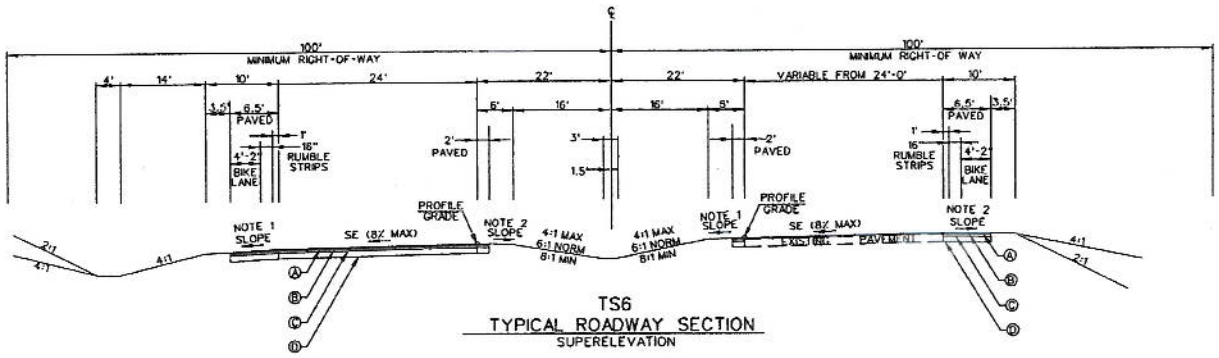
REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE:
TYPICAL SECTIONS

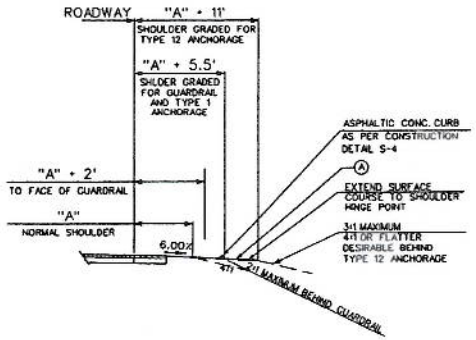
DRAWING No. 5-02



TS5
TYPICAL ROADWAY SECTION
NORMAL CROWN
OLD ALABAMA ROAD



TS6
TYPICAL ROADWAY SECTION
SUPERELEVATION
OLD ALABAMA ROAD



SHOULDER SECTION W/ GUARDRAIL

SEE CONSTRUCTION DETAIL S-4 FOR ADDITIONAL DETAILS FOR SHOULDER PAVING AND SURFACING UNDER GUARDRAIL.

PAVEMENT DESIGN

Ⓐ 165 #/YD2 ASPHALTIC CONCRETE, 12.5 mm SUPERPAVE, MIX DESIGN LEVEL B

Ⓑ 220 #/YD2 ASPHALTIC CONCRETE, 19 mm SUPERPAVE, MIX DESIGN LEVEL B

Ⓒ 440 #/YD2 ASPHALTIC CONCRETE BASE, 25 mm SUPERPAVE, MIX DESIGN LEVEL A

Ⓓ 12" GRADED AGGREGATE BASE

SLOPE CONTROLS		
SLOPE	CUT	FILL
4:1	0'-6'	0'-10'
2:1 *	OVER 6'	OVER 10'

* REQUIRES GUARDRAIL

NOTES:

1. SHOULDER TO SLOPE AT NORMAL RATE OR SUPERELEVATION RATE, WHICHEVER IS GREATER.

2. SHOULDER TO SLOPE AT NORMAL RATE OF 8.00% FOR MAINLINE S.E. RATES OF 2.00% OR LESS. FOR MAINLINE S.E. RATES GREATER THAN 2.00%, THE ALGEBRAIC DIFFERENCE BETWEEN THE MAINLINE PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 8.00%

JORDAN JONES & GOULDING

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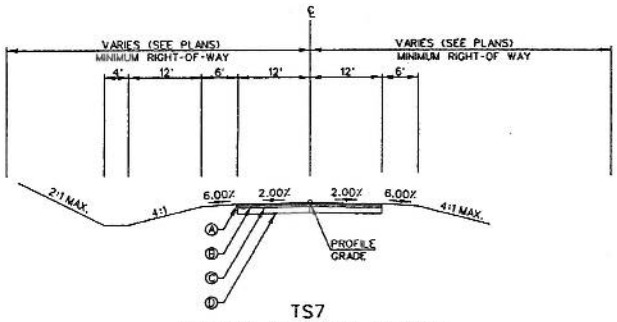
SCALE IN FEET
0 10 20 40

REVISION DATES

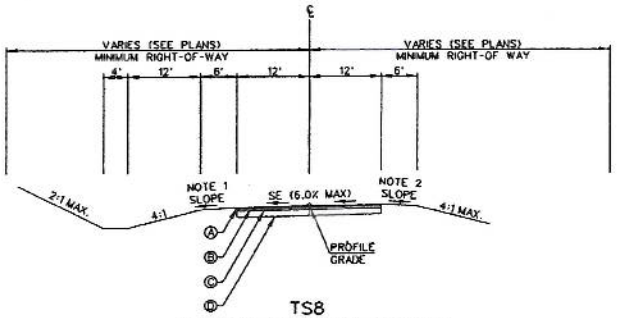
STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE:
TYPICAL SECTIONS

DRAWING No. 5-03



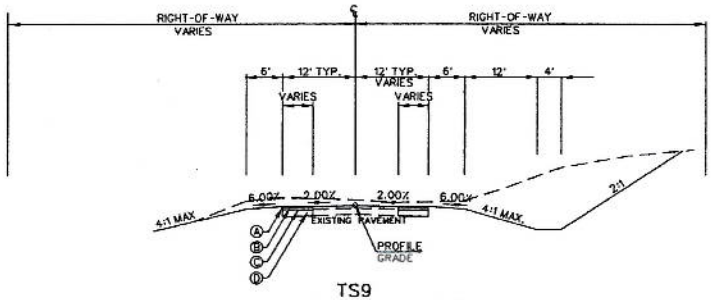
TS7
TYPICAL ROADWAY SECTION
NORMAL CROWN

OLD ALABAMA TIE-IN
DOUTHIT FERRY ROAD
BATES ROAD



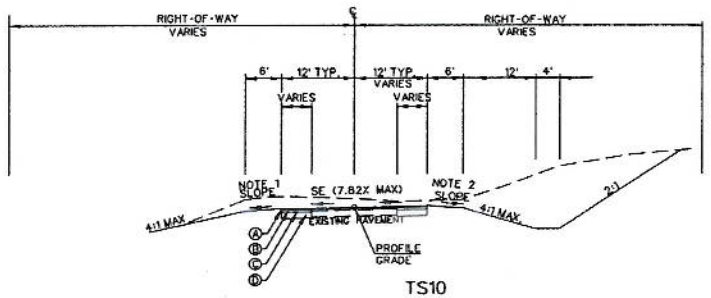
TS8
TYPICAL ROADWAY SECTION
SUPERELEVATION

ROCKMART HIGHWAY SR 113
OLD ALABAMA TIE-IN
BATES ROAD
PAGA MINE ROAD



TS9
TYPICAL ROADWAY SECTION
NORMAL CROWN

ROCKMART HIGHWAY SR 113
OLD ALABAMA TIE-IN
CARNES ROAD SW
DOUTHIT FERRY ROAD
BATES ROAD



TS10
TYPICAL ROADWAY SECTION
SUPERELEVATION

ROCKMART HIGHWAY SR 113
DOUTHIT FERRY ROAD
BATES ROAD
PAGA MINE ROAD

PAVEMENT DESIGN

Ⓐ 165 #/YD2 ASPHALTIC CONCRETE, 12.5 mm SUPERPAVE, MIX DESIGN LEVEL B

Ⓑ 440 #/YD2 ASPHALTIC CONCRETE, 19 mm SUPERPAVE, MIX DESIGN LEVEL B

Ⓒ 440 #/YD2 ASPHALTIC CONCRETE BASE, 25 mm SUPERPAVE, MIX DESIGN LEVEL A

Ⓓ 12" GRADED AGGREGATE BASE

SLOPE CONTROLS		
SLOPE	CUT	FILL
4:1	0'-6'	0'-10'
2:1*	OVER 6'	OVER 10'

* REQUIRES GUARDRAIL

NOTES:

1. SHOULDER TO SLOPE AT NORMAL RATE OR SUPERELEVATION RATE, WHICHEVER IS GREATER.

2. SHOULDER TO SLOPE AT NORMAL RATE OF 6.00% FOR MAINLINE S.E. RATES OF 2.00% OR LESS. FOR MAINLINE S.E. RATES GREATER THAN 2.00%, THE ALGEBRAIC DIFFERENCE BETWEEN THE MAINLINE PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 8.00%

JORDAN JONES & GOULDING

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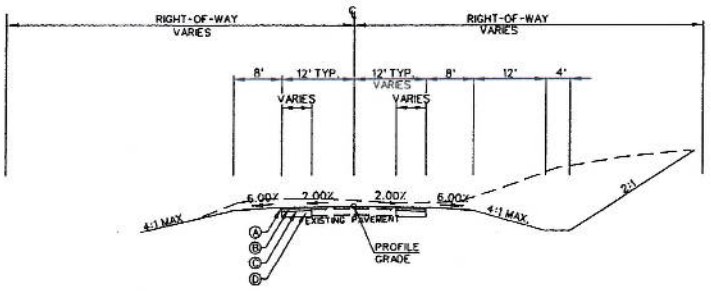
SCALE IN FEET
0 10 20 40

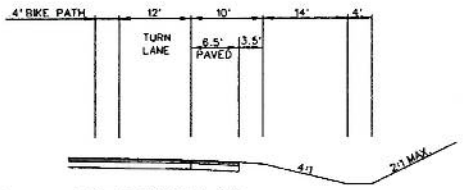
REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE:
TYPICAL SECTIONS

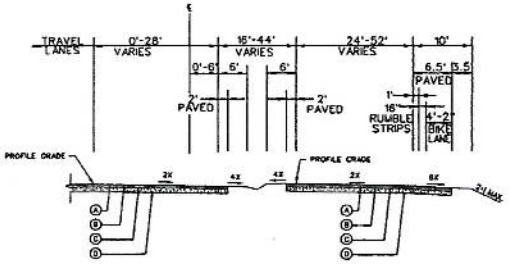
DRAWING NO. 5-04



TS11
TYPICAL ROADWAY SECTION
NORMAL CROWN
DALLAS HIGHWAY SR 61



RIGHT TURN LANE
(SEE CONSTRUCTION PLANS FOR LOCATIONS)



TYPE B MEDIAN TURN LANE DETAIL

PAVEMENT DESIGN

Ⓐ 165 #/YD2 ASPHALTIC CONCRETE, 12.5 mm SUPERPAVE, MIX DESIGN LEVEL B

Ⓑ 440 #/YD2 ASPHALTIC CONCRETE, 19 mm SUPERPAVE, MIX DESIGN LEVEL B

Ⓒ 440 #/YD2 ASPHALTIC CONCRETE BASE, 25 mm SUPERPAVE, MIX DESIGN LEVEL A

Ⓓ 12" GRADED AGGREGATE BASE

SLOPE CONTROLS		
SLOPE	CUT	FILL
4:1	0'-6'	0'-10'
2:1*	OVER 6'	OVER 10'

* REQUIRES GUARDRAIL

1. SHOULDER TO SLOPE AT NORMAL RATE OR SUPERELEVATION RATE, WHICHEVER IS GREATER.

2. SHOULDER TO SLOPE AT NORMAL RATE OF 6.00% FOR MAINLINE S.E. RATES OF 2.00% OR LESS. FOR MAINLINE S.E. RATES GREATER THAN 2.00%, THE ALGEBRAIC DIFFERENCE BETWEEN THE MAINLINE PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 8.00%

JORDAN JONES & GOULDING

NOT RELEASED FOR CONSTRUCTION

SCALE IN FEET
0 10 20 40

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE:
TYPICAL SECTIONS

DRAWING No. 5-05